

The Solar SKYLITE Water Heater



Solar Water Heater Uses Lightweight, Low-Cost Polymeric Materials in Rooftop Collector

With a grant from the Department of Energy's Inventions and Innovation Program, the American Solar Network, Ltd. developed a solar skylight water heater system. Sales of rooftop collectors are increasing and production capability has been expanded to include several models. The newest version marketed by SolarRoofs.com, a division of ACR Solar International Corp., is the Fireball 2001®. The system's rooftop solar collector comes in two easy-to-connect six-foot sections that weigh less than 38 pounds. The collector uses a high-performance copper absorber coated for low emissivity and high absorption. The inside walls of the collector feature a high-emissivity white coating that reflects otherwise lost heat back onto the absorber. Of the five collector models, three are open loop and two are freeze-proof, closed loop systems.

Solar heated water from the collector is circulated to the existing hot water heater using copper tubing. A differential temperature controller turns the circulation pump "ON" or "OFF" at the appropriate temperature differentials. Two sensors wired to the differential controller perform the temperature sensing function. One is placed at the bottom of the collection tank. The other sensor is placed just inside the collector. The optional freeze sensor attaches to the hot out line just as it leaves the collector box.

Benefits

Ease of Installation

The collector and solar water heating system can be installed in a few hours. Pre-assembly of components eliminates hours of installation time.

Energy Savings

Potential annual energy savings for a family of four are about 2700 kWh of electricity or about 10 million Btu depending on water use and climate conditions. Solar water heating systems can save \$175 per year for a family of four when compared with electric heating at a \$0.065/kWh rate.

Pollution Control

Solar water heaters are healthier for the environment because solar energy avoids the harmful emissions of electrical energy generation.

Overview

- ◆ Developed by SolarRoofs.com
- ◆ Commercialized in 1993
- ◆ Over 1,400 units sold

Energy Savings (Trillion Btu)

Cumulative through 2002	2002
0.076	0.014

Emissions Reductions (Thousand Tons, 2002)

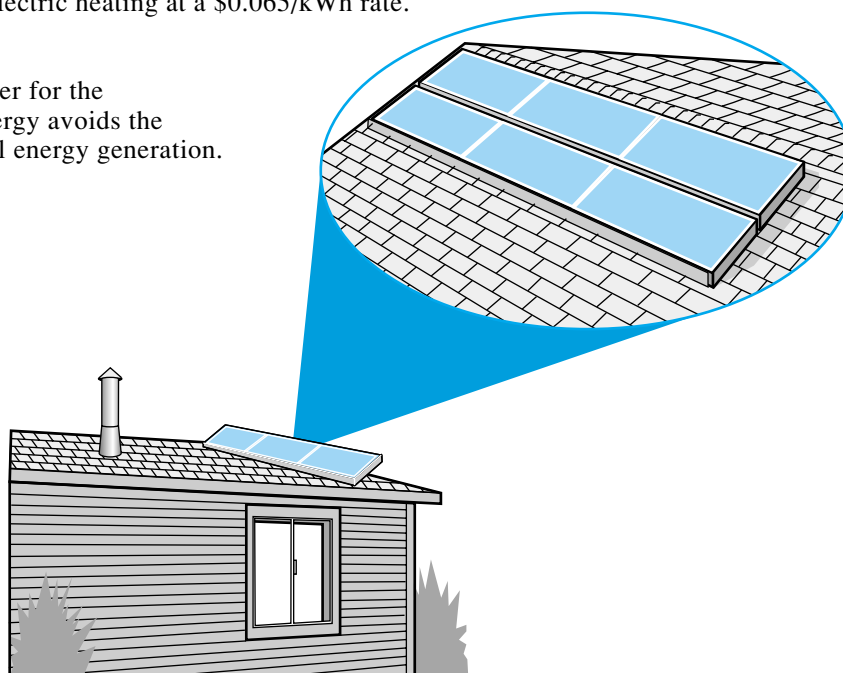
Particulates	SO _x	NO _x	Carbon
0.0	0.003	0.002	0.275

Applications

Rooftop solar panel for hot-water heating

Capabilities

- ◆ Easy-to-install modular system.
- ◆ Optional freeze protection system.
- ◆ Emulates a skylight in appearance and construction.



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